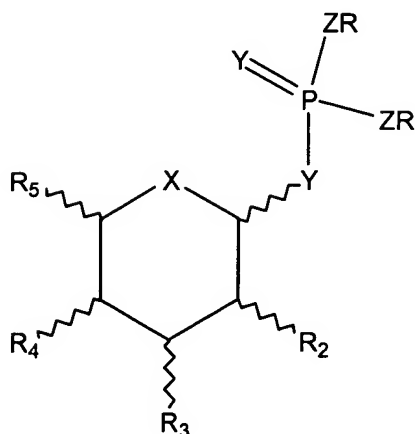


Claims

1. **(previously presented)** A compound represented by structure 1:



1

wherein

X represents O;

Y represents independently for each occurrence O;

Z represents independently for each occurrence O;

R is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aralkyl, heteroaryl, and heteroaralkyl;

R' is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, acyl, and sulfonyl;

R₂, R₃, and R₄ are independently selected from the group consisting of R₆, -OR', -SR', -NR'₂, -OSO₃H, and -OPO₃H₂;

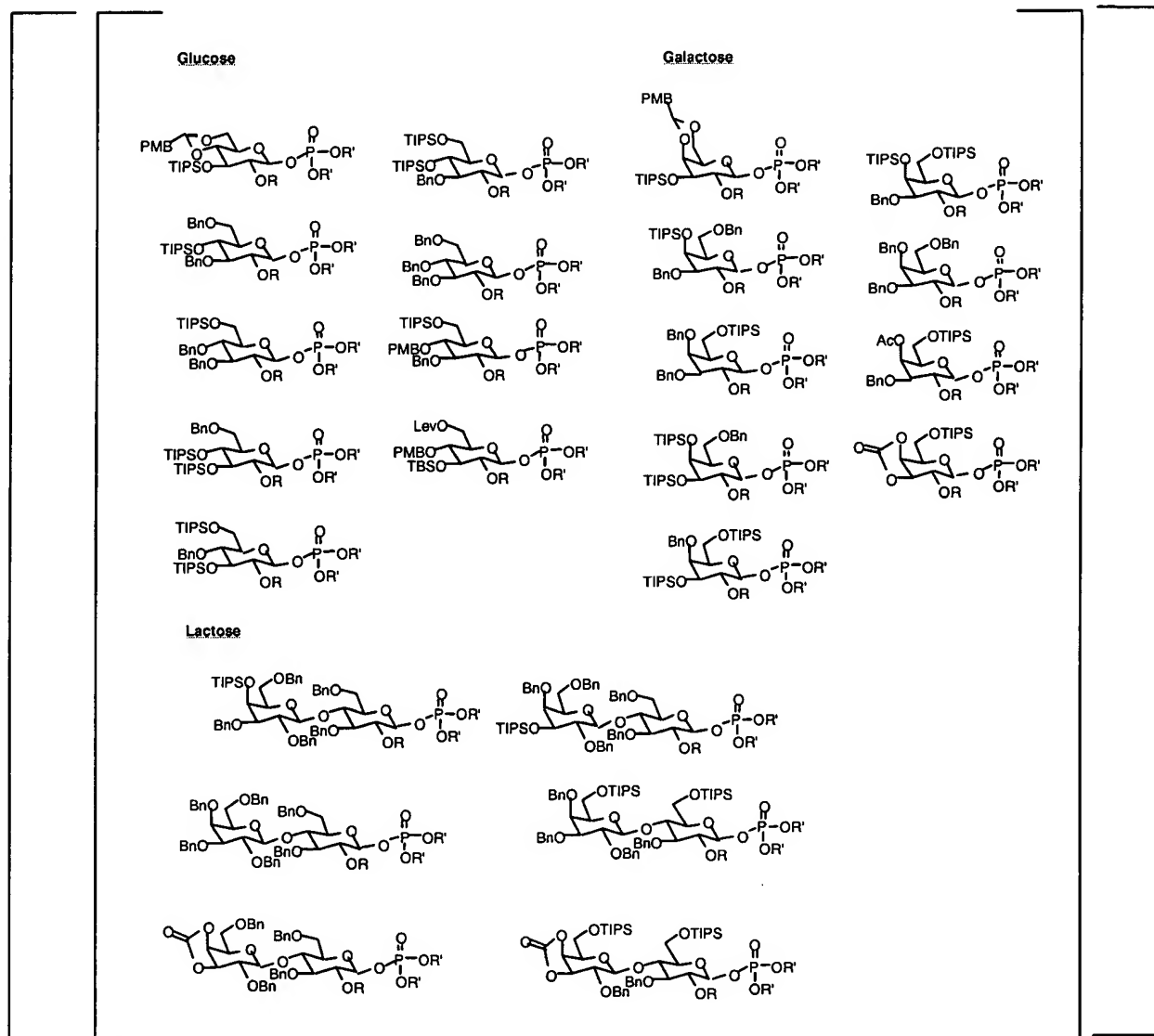
R₅ is selected from the group consisting of R₆, -(CR₂)_nOR', -(CR₂)_nSR', and -(CR₂)_nNR'₂;

R₆ is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, and heteroaralkyl; and

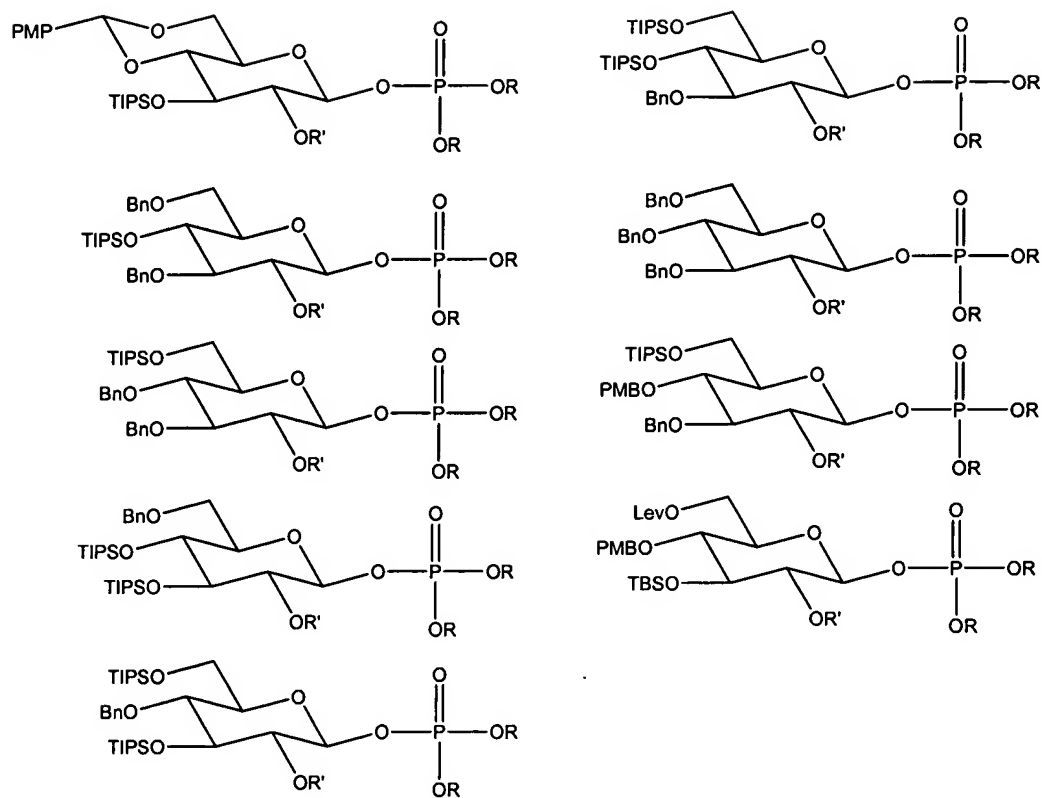
n is an integer selected from the range 0 to 10 inclusive.

Claims 2-22 (canceled)

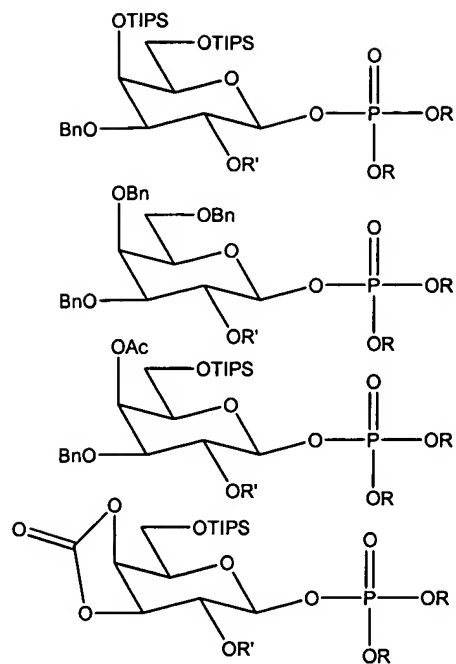
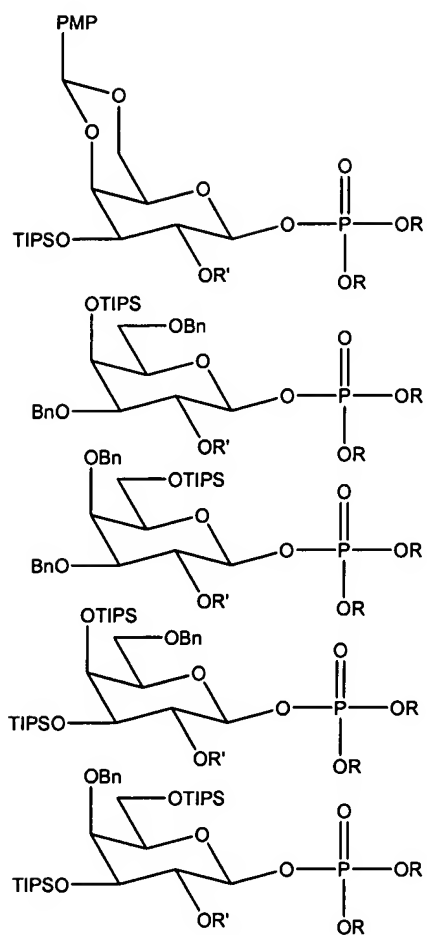
23. (currently amended) The compound of claim 1, wherein said compound is represented by one of the following structures:



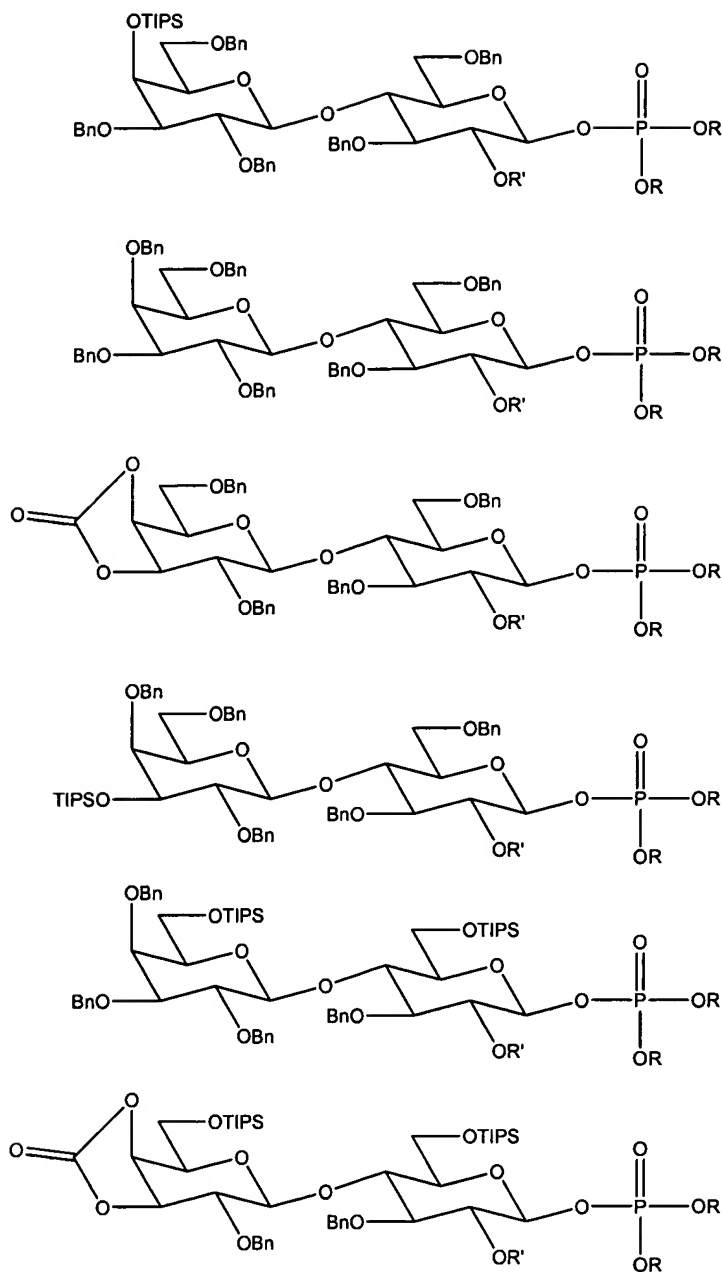
Glucose



Galactose



Lactose



wherein

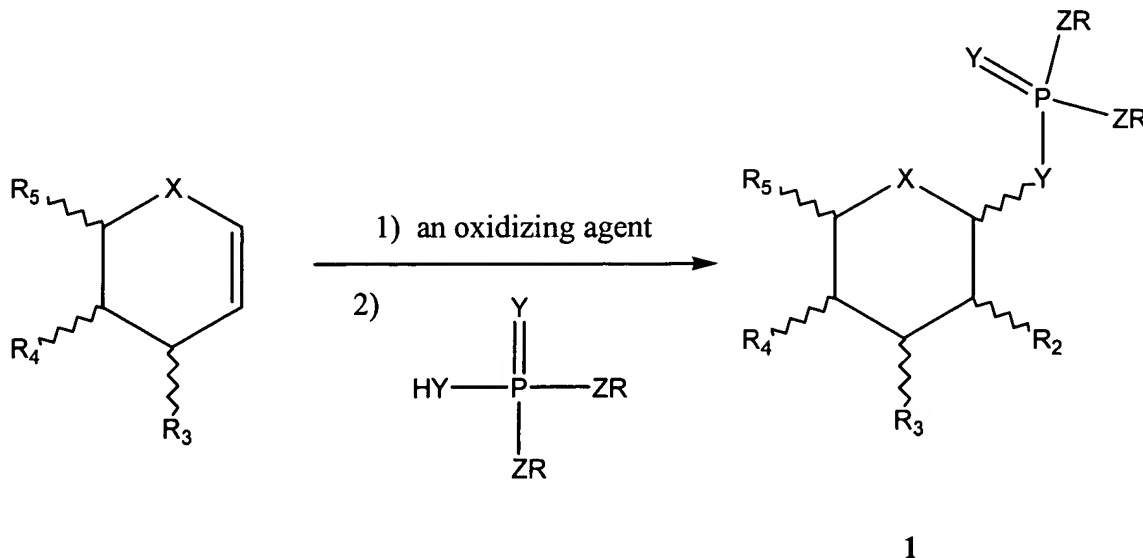
TIPS represents triisopropylsilyl;

PMP represents paramethoxyphenyl; and

Bn represents benzyl.

Claims 24-41 (canceled)

42. (previously presented) A method of synthesizing a compound represented by 1, wherein said method is represented by the following scheme:



wherein

X represents O;

Y represents independently for each occurrence O;

Z represents independently for each occurrence O;

the oxidizing agent is selected from the group consisting of dioxiranes, percarboxylates, and persulfates;

R is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, and heteroaralkyl;

R' is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, acyl, and sulfonyl;

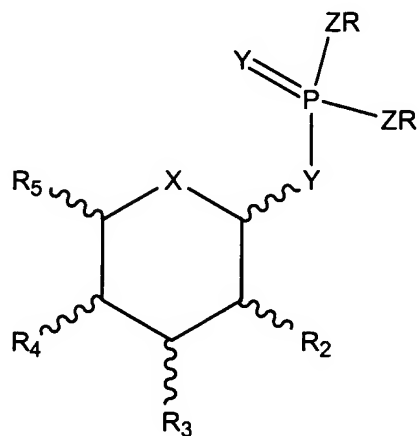
R₂ is OR';

R₃, and R₄ are independently selected from the group consisting of R, -OR', -SR', -NR'₂, -OSO₃H, and -OPO₃H₂;

R_5 is selected from the group consisting of R, $-(CR_2)_nOR'$, $-(CR_2)_nSR'$, and $-(CR_2)_nNR'_2$; and

n is an integer selected from the range 0 to 10 inclusive.

43. **(original)** The method of claim 42, wherein the oxidizing agent is a dioxirane.
44. **(original)** The method of claim 43, wherein the oxidizing agent is dimethyl dioxirane (DMDO).
45. **(previously presented)** A compound represented by structure 2:



2

wherein

X represents O;

Y represents independently for each occurrence O;

Z represents independently for each occurrence O;

R represents independently for each occurrence aryl;

R' is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, heteroaralkyl, acyl, and sulfonyl;

R_2 is selected from the group consisting of R_6 , $-OR'$, $-SR'$, $-NR'_2$, $-OSO_3H$, $-OPO_3H_2$;

R_3 , and R_4 are independently selected from the group consisting of R_6 , $-OR_7$, $-SR'$, $-NR'_2$, $-OSO_3H$, and $-OPO_3H_2$;

R_5 is selected from the group consisting of R_6 , $-(CR_2)_nOR_7$, $-(CR_2)_nSR'$, and $-(CR_2)_nNR'_2$;

R_6 is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, aralkyl, heteroaryl, and heteroaralkyl;

R_7 is selected, independently for each occurrence, from the group consisting of H, alkyl, heteroalkyl, aryl, heteroaryl, heteroaralkyl, and sulfonyl; and

n is an integer selected from the range 0 to 10 inclusive.